Waste Management

Low-Level Waste

. . .at the Nevada Test Site

Background

In 1961, the U.S. Government began using the Nevada Test Site (NTS) for the disposal of low-level waste. Initially the waste was generated by the weapons testing program; however, later it was also generated through U.S. Department of Energy (DOE) environmental restoration activities.

Since 1976, NTS disposal activities have expanded to include the receipt of low-level waste generated at other DOE and U.S. Department of Defense-approved facilities throughout the United States. The DOE National Nuclear Security Administration Nevada Site Office, which manages these NTS programs, is committed to conducting disposal operations in the safest, most systematic manner possible.

NTS – An Ideal Location

A combination of various conditions make the NTS ideal for the safe and effective disposal of low-level waste. The two disposal facilities, located in Areas 5 and 3, are well above regional groundwater levels (770 feet and 1,600 feet, respectively), and are contained in "closed basins." A "closed basin" describes a certain kind of topography that prevents the external drainage of surface water. The surface water collects within the basin and eventually evaporates. Disposal conditions at the NTS are further optimized by the arid desert environment and the typically high temperatures, which serve to maximize evaporation.

The Nevada Site Office Radioactive Waste Acceptance Program approves all low-level waste before shipment to the NTS. Upon arrival at the appropriate disposal facility, radiological surveys are completed for each truck, trailer and container to ensure compliance with U.S. Department of Transportation regulations and NTS Waste Acceptance Criteria. A final survey is conducted on all trucks and trailers prior to release.

Area 5 Radioactive Waste Management Complex disposal cell.

Area 5

The Area 5 Radioactive Waste Management Complex is a 732-acre site, of which 160 acres are currently used for radioactive waste storage and disposal. Low-level waste is generally shipped to the NTS in drums and boxes that are placed in shallow, excavated disposal cells, which range from 12 to 48 feet deep. Once delivered to the designated disposal cell, containers are carefully stacked and methodically arranged in a grid system to facilitate tracking. As the cells fill, waste handlers spread an 8-foot layer of soil over the waste.

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What is Low-Level Waste?

Unlike other categories of radioactive waste, low-level waste is not defined by what it is, but rather by what it is not. Low-level waste is material that is not classified as high-level waste, transuranic waste, spent nuclear fuel, or by-product material such as uranium mill tailings. Low-level waste usually contains small amounts of radioactive material and includes items like construction debris, trash, soil, and equipment.

Area 3

Historically, larger or bulk-type packages of low-level waste have been disposed in designated subsidence craters in Area 3 of the NTS. These craters, formed in the early 1960's by underground nuclear testing, cover approximately 120 acres and have a limited available capacity remaining. Common types of low-level waste packages disposed at this facility include concrete monoliths, cargo containers, "supersacks," and "burrito wraps." Layers of waste are separated by a 1- to 3-foot layer of clean fill soil. Once the two currently active disposal cells are filled, it is anticipated that the Area 3 disposal facility will undergo the closure process.

Area 3 Radioactive Waste Management Site

How Do We Ensure Safe Disposal?

- **Radioactive Waste Acceptance Program** - verifies that waste *types*, *packaging*, and *handling procedures* conform to the NTS's stringent waste acceptance criteria prior to shipment and disposal.
- **Risk Assessments** - are systematic analyses, such as computer models, that offer predictions on potential short-term and long-term risks associated with waste disposal activities.
- **Air, Groundwater, and Soil Monitoring** - serves as an early detection system in the unlikely event that any contamination migrates from the immediate disposal area.
- **Closure Program** - focuses on the development of earthen closure caps for disposal sites to protect against potentially damaging environmental forces, such as erosion.

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